

Section-C

(Long Answer Type Questions)

Note : There are **four** questions in this section. Attempt **any one** question. Each question carries **15** marks.

[1×15=15]

6. (a) What are the various disk-scheduling algorithms? Explain.
(b) What are the advantages(any three) and disadvantages(any three) of Non Contiguous Allocation?
7. (a) Define and explain the concept of the file access methods.
(b) Explain the main functions of a file system.
8. (a) What are the various CPU-scheduling algorithms? Explain.
(b) Define Tree Directory. Explain it with example.
9. Given the following queue -90, 185, 30, 117, 13, 133, 72, 74 with the Read-write head initially at the track 50 and the tail track being at 199. Calculate the Total Head movements by using:
(a) SCAN Scheduling
(b) LOOK Scheduling

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Roll No. :

BCA-3003

BCA (Semester-III) (NEP) Examination, 2025-26

OPERATING SYSTEM

[Paper : Third]

Time : 2 Hours]

[Maximum Marks : 75

- Note :** 1. Attempt questions from **all** sections as directed.
2. The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.
3. "B" copy will not be provided.

Section-A

(Short Answer Type Questions)

Note : There are **nine** questions in this section. Attempt **all** questions. Each question carries **5** marks. [9×5=45]

1. (a) Write the comparison between Batch processing OS and Multi-programming OS (any three).

- (b) What is the purpose of File system?
- (c) Explain word Turnaround Time with formula.
- (d) Distinguish between Multitasking and time sharing systems.
- (e) Write the comparison between Waiting time and Completion time.
- (f) Distinguish between Preemptive and Non preemptive Scheduling.
- (g) Define Starvation in deadlock.
- (h) Explain the concept of virtual memory.
- (i) List two differences between logical and physical addresses.

Section-B

(Long Answer Type Questions)

Note : There are four questions in this section. Attempt any one question. Each question carries 15 marks.

[1×15=15]

2. Write short notes on the following :

- (a) Fragmentation
- (b) Deadlock avoidance
- (c) Paging

- 3. (a) Write the difference between job scheduler and CPU scheduler.
- (b) Define and explain partition allocation algorithms.
- 4. Consider the following page reference string: 1, 2, 3, 6, 2, 1, 6, 3, 1, 2, 3, 7, 3, 6, 2, 1, 2, 3, 6. Identify the no. of page faults would occur for the following page replacement algorithms, assuming three frames? are initially empty?
 - (a) FIFO replacement
 - (b) LRU replacement
- 5. Calculate Average waiting time by using Shortest Job First (SJF) algorithm :

Process No.	A.T.	B.T.
P1	0	4
P2	1	2
P3	3	1
P4	1	2
P5	3	2
P6	0	8